Installation Instructions
EARL-Flow switches types 31d…
EARL Flow meters types 31az

I m p o r t a n t N o t e

Before installation and commissioning of the unit the operating instructions must be read extremely carefully to avoid possible damage which may invalidate the warranty.

The unit must only be used for the operating conditions as detailed within the enclosed specification..

A l l o t h e r u s a g e i s e x c l u d e d .

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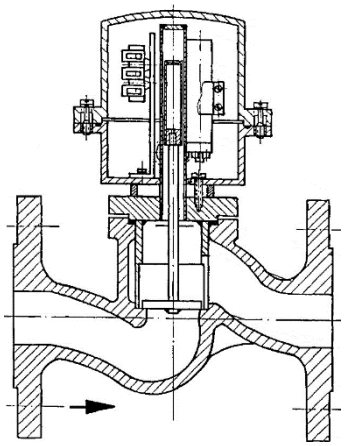

1. General

The rugged and hard wearing float operated units measure and control gases and uncontaminated liquids. The units can be mounted in either horizontal or vertical pipes DN 15 to DN 150 and are suitable for pressure ranges PN 10 to PN 320. The units must only be used for the operating conditions as detailed in the specification. In case of differing operating conditions, please contact the manufacturing in writing.

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2. Operation

When the medium enters in the direction of flow as indicated by the arrow it displaces the float before escaping through a slot located in a cylindrical sleeve. A magnet attached to and moving with the float, transfers the movement to perform a function according to the unit type.

The following models are available:

- **(Ex)i** for intrinsically safe circuit; also EEx ia
- **(Ex)** explosion proof EEX de II CT6 according to ATEX
- **az** with switch contact and local indication..

3 Note

The pipe must be cleaned before installing the unit to ensure that operation is not impaired by impurities such as welding beads or sealing compounds. It has to be avoided that impurities are entering the unit during installation.
The units are supplied with either flanged connection or threaded process connection. The type is indicated in the specification.
Connections, installation position, direction of flow are indicated in the enclosed specification.
Before installing the unit remove the transport seal. Installation such that the arrow on the unit points into the direction of flow.
Install the unit such that it is always filled with the medium. When mounting the unit with free outlet a swan neck has to be provided behind the unit.

4 Technical data

The technical data for which the unit is ranged are to be found in the enclosed specification. Please contact the manufacturer in writing in case of deviations.

5 Set point adjustment

(for adjustable set point)

a.) Set point adjustment with **eccentric disc (VAKV)**

- After loosening of the cylindrical screws the top of the switch box will be removed.
- After loosening the two knurled screws the eccentric disc has to be turned by hand so far till the recommended line on the scale shows to the index (notch) on the switch holder.
- After that fasten the two knurled screws tight again and close the switch box.

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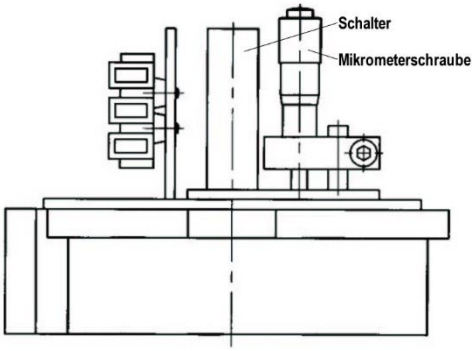
b.) Set point adjustment

The adjustment is done via **Micrometer-screw**



- Remove cap after removing cylindrical screws
- By turning the scale cylinder the requested set point is adjusted. (a table with average values is to be found on the inside of the back side). Do not damage magnetic coupling or pointer.
- Replace cap.

6. Electrical connections

Quantity, type, protection class and rupturing capacity of the switch contact are specified in the specification.

- Remove cap after removing cylindrical screws.
- Enter cable through cable gland and connect to connecting terminals.
- Replace cap.

Contact arrangement type 31d

7 Drawing

A drawing with the main measurements is attached**.**

8 Special tools

To remove the cap us a Phillips screw driver size 2.

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9. Warning

- If the installation position is not made as specified the unit will not operate properly..
- If the straight runs of the pipe are not sufficient malfunction may be the result..
- Operational conditions which are not in accordance with the specification may have a deviation of the required set points as consequence.
- The rupturing capacity of the switch contact must be strictly observed. Otherwise the switch contact will be destroyed.
- Before removing the unit from the pipe empty the pipe and switch off power.

10 Maintenance

The proper function of the unit has to be tested periodically, at least once a year. It is the responsibility of the user to choose the testing method and the time intervals.

It is recommended to return the unit to the manufacturer

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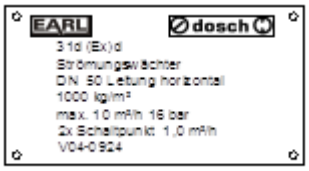
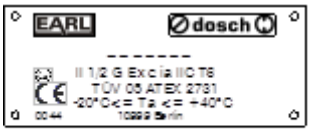
11. Additional information for Ex version

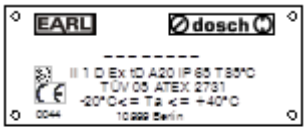
Attention:

- In the design of the electrical circuits, EN 60079-14 must be considered.
- In determining the surface temperature, no dust deposits and no safety factors were considered.

These devices are identified by a 2nd type plate and equipped with the Ex symbol.
The devices marked in this way can be used in Ex-zones 0/1, 1, 2.







Standard- type plate additional Ex- type plates

Types 31d … (Ex)d / 31d …(Ex)i

Acceptable range of ambient temperature			- 20 °C to 40 °C	
Acceptable temperature range on the inside at the riser			- 20 °C to 40 °C	
Acceptable range of medium pressure in the presence of explosive atmospheres			0.8 to 1.1 bara	
Limit switching frequency			60 switching cycles per minute	
Identification				
II 1/2 G Ex c ia IIC T6		**II 1/2 G Ex c d e IIC T6**		
Only for connection to separately certified intrinsically safe circuits [ia] with the following values:		Min. Connection cross section		1.5 mm²
		magnetic switch	8443-09-..	8033-02-..
Ui	16 V	Max. switching voltage	250 V AC/DC	42 V AC/DC
Ii	25 mA	Max. switching current	2 A	0,3 A
Pi	64 mW	Max. contact rating	300 W (AC) 200 W (DC)	13 W (AC/DC)